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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/312,302	05/14/1999	MARIO D. NEMIROVSKY	P3803	2422

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EXAMINER

DONAGHUE, LARRY D

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 10/29/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/312,302

Applicant(s)

NEMIROVSKY ET AL.

Examiner

Zarni Maung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. This action is responsive to amendment filed on August 21, 2003. Claims 1-42 are presented for further examination.

2. Claims 1-42 are presented for examination.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5-6, 8-12, 15-17, 19-20, 22-26, 29-31, 33-34, and 36-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Nemirovsky (DISC, A Dynamic Instruction Stream Computer).

Nemirovsky taught the invention as claimed including a processor executing a plurality of physical hardware streams (page 63), a set of functional resources page (101 and 102), interrupt logic (page 96) and interrupts are directed to one or more specific streams of said plurality of physical hardware streams (page: 63; page 64, each of

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streams is interleaved in the processor at the instruction level).

As to claim 2 and 3, Nemirovsky taught one exception or interrupt directed to two or more streams (page 63) and two or more interrupts or exceptions are directed to one stream page 63).

As to claim 5, Nemirovsky taught that the directing is programmable (pages 94-98).

As to claim 6, Nemirovsky taught the interrupt logic refers to a data store (page 96, fig. 5.13).

As to claim 8 and 9, Nemirovsky taught the interrupts are from an external device and software interrupts (page 95).

As to claim 10, Nemirovsky taught a mask (page 96;1.

As to claims 11-12 , Nemirovsky taught after interrupting the streams and vectoring to a service routine (pages 96-97).

5. Claims 15-17, 19-20, 22-26, 29-31, 33-34, and 36-40 fail to teach or define above or beyond claims 1-3, 5-6, 8-12, and are rejected for the reasons set forth above.

6. Claims 4, 13-14, 18, 27-28, 32 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nemirovsky as applied to claims 1-3, 5-6, 8-12, 15-17,

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19-20, 22-26, 29-31, 33-34, and 36-40 above, and further in view of Nemirovsky et al. (DISC, A Dynamic Stream Computer). Nemirovsky et al. (DISC, A Dynamic Stream Computer) reference was cited by applicant on paper no.2.

As to claims 13, 27 and 41, Nemirovsky did not expressly teach delaying the vectoring to a service routine, Nemirovsky et al. taught that this technique is useful in synchronization (page 167, section titled Interrupts). It would have been obvious to one of ordinary skill in the art to combine these references as they are directed to the same device.

As to claims 14, 28, and 42, Nemirovsky taught that different streams vector to different service routines (page 96, first paragraph).

As to claims 4, 18 and 32, Nemirovsky (page 64) directing is static at processor design, by suggesting it would be beneficial to have a dedicated IS for interrupts.

7. Claims 7, 21 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nemirovsky as applied to claims 1-3, 5-6, 8-12, 15-17, 19-20, 22-26, 29-31, 33-34, and 36-40 above, and further in view of applicant's admission.

The applicants admission on paper no. 8, last paragraph of page 8 continued on to page 9, set forth that conditional and dynamic mapping is well-known in the art. It would be obvious to one of ordinary skill in the art to substituted one well known method of interrupt assignment for another to achieve the optimal desired

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performance.

8. Applicant's arguments filed on March 21, 2003 have been fully considered but they are not persuasive.

9. In the remarks applicant argues in substance that the prior art fails to teach a multistreaming processor system comprising a plurality of physical hardware streams for streaming one or more instruction threads.

RESPONSE

The examiner disagrees as Nemirovsky teaches that the DISC concept relies upon an architecture maintaining several simultaneous instructions which are dynamically controlled by the processor (see pages 63, 69). In addition, the instruction interleaving with several simultaneous instructions allows the DISC to obtain high instruction throughput which is impossible to achieve in a conventional architecture.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Larry Donaghue whose telephone number is (703) 305-9675. The examiner can normally be reached on Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An, can be reached on (703) 305-9678. The fax phone number for this Group is (703) 308-9052. Additionally, the fax numbers for Group 2100 are as follows:

Official Faxes: (703) 872-9306

After Final Responses: (703) 746-7238

Draft Responses: (703) 746-7240

Any inquiry of a general nature or relating to the status of this application should

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be directed to the Group receptionist at (703) 305-3900.

October 27, 2003


ZARNI MAUNG
PRIMARY EXAMINER